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ABSTRACT

The vocabulary development in the first 11 weeks of English acquisition by a 5-year-old Japanese girl was studied. The girl and her mother (a linguistic researcher) arrived in the United States at the start of the study. Lexical data from a language diary kept by the mother and from adult and peer sessions were pooled to produce a chronological corpus of vocabulary acquisition. The words in the chronological vocabulary corpus were classified according to semantic class. Lexical acquisition proceeded more rapidly than in first language development, with 75 words acquired by 7 weeks and 171 by 11 weeks. General nominals constituted 48% and multiword gestalt type lexical items constituted 12% of the total lexicon. Verbs, modifiers, and pronouns were more frequent than typically found in first language lexicons. Only 15% of the first 75 words and 11% of the total lexicon of 171 words were ever overextended. Overinclusive categorizing was less prominent and overextensions expressing presyntactic relations were relatively more prominent than in first language learning. It is concluded that vocabulary acquisition in second language development differs in a number of ways from first language lexical development. (Author/RW)

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Lexical Development in Second Language Acquisition:

Initial Stages in a Japanese Child's Learning of English

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Running head: Lexical Development

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Abstract

This research is a diary study of lexical development in the first 11 weeks of lexical acquisition of English as a second language by a 5-year-old Japanese girl. Lexical acquisition proceeded more rapidly than in L1 development, with 75 words acquired by 7 weeks and 171 words by 11 weeks. General nominals constituted 48% and multi-word gestalt-type lexical items constituted 12% of the total lexicon. Verbs, modifiers, and pronouns were more frequent than typically found in first language lexicons. Only 15% of the first 75 words and 11% of the total lexicon of 171 words were ever overextended. Overinclusive categorizing was less prominent and overextensions expressing presyntactic relations were relatively more prominent than in first language learning. The findings are discussed with reference to the issues of lexical style differences and overextension of word meanings in L1 acquisition.

Lexical Development in Second Language Acquisition: Initial Stages in a Japanese Child's Learning of English

This research is a diary study of lexical development in the earliest weeks of acquisition of English as a second language by a 5-year-old Japanese girl. Lexical development has been largely neglected as a subject of second language acquisition research (Hakuta & Cancino 1977; McLaughlin 1980), although there is an extensive literature on lexical development in first language acquisition (Carey 1982; Clark 1979). For example, L2 lexical development is not even discussed in a recent text on second language acquisition (Dulay, Burt & Krashen 1982).

Because of this dearth of research, we currently know very little about vocabulary development in children engaged in successive acquisition of a second language. A basic issue is the degree to which vocabulary acquisition in first and second language learning are similar. Three important areas in which L1 and L2 lexical development might differ are rate of vocabulary acquisition, composition of the lexicon, and overextension of word meanings. Additionally, it would seem likely that there are wide individual differences among second language learners in these same three aspects of lexical development. It may be the case that these individual differences in L2 lexical development vary systematically according to such factors as the age, sex, and social characteristics of the learner. They may also be systematically related to semantic or phonological characteristics of

the child's first language. However, there are currently only a handful of studies of lexical development in L2 acquisition, making it difficult to draw conclusions about such individual differences.

Perhaps the most comprehensive and complete study of a child's successive acquisition of a second language is Kenyeres' account of her daughter Eva's acquisition of French at the age of 6-to-7 years (Kenyeres & Kenyeres 1938). Eva made very rapid progress in both syntax and vocabuary. Kenyeres vividly describes how Eva constantly asked the names of objects and then rehearsed them with her dolls, how she would ask her parents to quiz her on vocabulary, and how she conversed at length about Hungarian and French word derivations. While Kenyeres gives no specifics about vocabulary size or rate of acquisition, sample vocabulary items listed at the end of 5 months of acquisition reveal a diverse and quite sophisticated vocabulary: not only common words such as house and tree, but also words such as mirror, beast, and opening. With regard to the issue of overextension, Kenyeres discusses at some length Eva's efforts at establishing the subtleties of reference for words such as rule or malheureux.

One of the few contemporary studies of second language lexical development is Yoshida's (1978) study of a 3 1/2 year old Japanese boy named Miki. She followed him weekly for 7 months, beginning her study after he had been in the U.S. for 2 months. Yoshida reports that Miki had used 300 productive words by the end of the 7 month period: 60% of the corpus were nominals, 13% action words, and 10% modifiers. Verbs were not used correctly except in memorized routines. The largest classes of nominals were foods (20%), vehicles (11%), animals (8%), and

outdoor words (8%). Yoshida also states that overextension of word meanings was less common than is found in L1 acquisition and that cognates played a major role in Miki's early vocabulary development, but she presents no relevant data for these points.

Hakuta (1974) reports that his 5-year-old Japanese subject Uguisu used 217 different words in the first 3 months of data collection--which began 5 months after her arrival in the U.S. While lexical development was not a focus of Hakuta's research, he did report that nouns constituted 56% of these words, modifiers 18%, and verbs 26%. Hakuta states that these data probably underestimate Uguisu's actual vocabulary size. It is noteworthy that his subject appears to differ from Yoshida's Japanese child in being a more rapid word learner and in concentrating more on learning verbs and modifiers than on acquiring nominals. It is possible that these rate and style differences in lexical acquisition are attributable to the age difference between Miki and Uguisu. Hakuta (1980) also reports one instance of a lexical form class error suggestive of negative transfer from L1 to L2; this was his subject's use of mistake as a verb form (mistaking), presumably because mistake is primarily used as a verb rather than a noun in Japanese.

Vihman (1982) has reported some lexical data on her daughter's acquisition of English at age 2, following her earlier partial acquisition of Estonian as L1. Vihman's data trace Virve's L2 progress from the beginning of her extensive exposure to English. While the lexical data are only described in passing, Vihman indicates that Virve knew at least 100 words or lexical units after 4 months of exposure to

English at her daycare center. A prominent aspect of Vihman's data is the high percentage of unanalyzed, multi-word items in the lexicon such as Mickey Mouse, happy birthday to you, or lunch time. These data suggest that Virve had a gestalt style of lexical acquisition, as described by Peters (1983).

van Helvert (1982) has recently reported data on acquisition of Dutch by 5 Turkish school children. After 9 months of data collection, the number of different vocabulary words used by the children ranged from 418 to 726. Nouns constituted between 33% and 46% of total word types and verbs ranged from 12% to 14%. van Helvert notes that adverbials and pronouns were used frequently. She also remarks that the children talked almost exclusively about the materials and toys present in the sessions, thus suggesting a considerable constraint on vocabulary diversity.

Felix (1978) has also reported a bit of lexical data from his study of American children learning German. The children made rapid strides in syntactic development, producing questions, negatives, and embeddings within the first 5 months. However, they acquired only a minimal vocabulary: neither child used more than 40 different nouns or 20 different adjectives over this entire 5 month period.

Thus, the existing literature suggests wide individual variation in lexical acquisition among children learning a second language and across different situations of data collection. The range seems to extend from Felix's children who learned a minimal number of words to Kenyeres' Eva who acquired an extremely rich vocabulary in the same period of 5 months. At least three different strategies of L2 lexical

acquisition are suggested by the existing data: a referential or nominal strategy, a gestalt strategy focussed on unanlyzed multi-word units, and a syntax-based strategy focussed on verb and pronoun acquisition. Unfortunately, most of the studies which report lexical data at all have not had vocabulary acquisition as a primary focus of the research, resulting in data which are sketchy and incomplete. This means that we currently have very little notion of the range of variation in rate and style of L2 lexical acquisition or a clear understanding of the major determinants of this variation.

This case study traces the second language acquisition process from its beginnings, starting when our subject first arrived in the U.S. Many studies of child second language acquisition, most relevantly those with Japanese subjects, have begun data collection several months after the child arrived in the L2 environment (Gillis & Weber 1976; Hakuta 1978; Yoshida 1978). The few studies which do cover the earliest months of exposure focus little attention on lexical acquisition (Felix 1978; Fillmore 1979; Wode 1981). Yet, it is clear that the earliest months of acquisition provide rich and essential data for exploring lexical and semantic development. Our research is an amalgam of the traditional diary method with more modern and systematic modes of data collection. Our primary aim in this paper is to describe one child's early lexical development in L2 acquisition and to compare this process with lexical development in first language learning.

Method

The subject of our case study is a 5-year-old child named Atsuko who is the daughter of the second author, a linguist from Japan. The

purpose of their year's sojurn in the United States was to study the process of second language acquisition. This paper covers data collected during Atsuko's first 11 weeks in the United States. There are three main sources of data for the research. First, Okuda's language diary is a chronological account of Atsuko's acquisition of English from the day of her arrival in the United States. The diary includes observations about Atsuko's comprehension of English, her spontaneous production of English words and phrases, her imitative use of English, and many of Atsuko's comments about learning English and her hypotheses about word meanings. Secondly, our data were drawn from formal audio-taped sessions, held approximately on a weekly basis, in which Atsuko interacted with the first author, while her mother took detailed running notes. During these sessions, Atsuko drew, looked at books, did puzzles, and chatted abut topics of interest. The third data source consisted of spontaneous play interactions between Atsuko and an American friend, observed and audio-taped by her mother in their home.

During the 11 week period which constitutes the time frame of this report, Atsuko was seen for 7 formal taping sessions. The first session was held one month after her arrival in the U.S. and subsequent sessions were conducted at approximately weekly intervals. For purposes of data reduction and analysis, these 7 sessions were taken as temporal blocks for all the data reported in this paper. The total corpus of utterances (tokens) for each of the 7 sessions or diary periods was subdivided into 1) unique utterance types (types); 2) repetitions of these utterance types ; 3) imitations; and 4) Japanese/English mixed utterances. The corpus of unique utterance types per session was then

broken down by utterance length. The corpus of utterance types and the corpus of repetitions were used to compile Atsuko's developing lexicon.

For the analyses reported here, lexical data from the language diary and from the adult and peer sessions were pooled to produce a chronological corpus of vocabulary acquisitions over the 7 temporal blocks. A word had to have been used spontaneously on at least two occasions before it was counted as a viable productive acquisition. Two uses of a word in a single session or situation met this criterion, as long as the uses were not consecutive or even proximal (e.g. an interval of roughly 10 utterances was required). A word was not considered as acquired if Atsuko obviously had no idea of its meaning, even though she could produce the utterance. On the other hand, overextensions or other deviations from strict adult usage did not disqualify a word from inclusion in the corpus. Loanwords or cognates were included in the corpus if they were pronounced in roughly an English manner and not produced in the context of a Japanese utterance.

The words in the chronological vocabulary corpus were classified according to semantic class, using procedures outlined in Rescorla (1976). Nominals were categorized as either Specific (proper nouns) or General. General nominals included the following word classes: people (baby); animal (cat); food (banana); clothing (dress); letters/numbers (7); natural objects/places (flower/school); man-made objects (car); actions/activities (snacktime); and abstract (name). Non-nominals included adjective/adverb modifiers (pink/very); main verbs (change); interjections/expressions (byebye, 'scuse me); pronouns (you);

auxiliary/copula verbs (is); and assorted closed class terms such as conjunctions (and); prepositions (at); articles (the); and question words (what). Formulaic expressions which initially appeared to be unanalyzed wholes were counted as single lexical units, as in Vihman (1982) (hello, my name is Atsuko; see you tomorrow; come here; don't you do that). When a word contained in such a multi-word lexical unit was used in a new and different context, that word was then counted as a discrete vocabulary item (e.g. come was credited after being used in come here, come down, and you coming).

Each productive word was examined for the occurrence of overextended usage, using the procedures employed in Rescorla (1980). Overextension was defined as any use inconsistent with standard adult reference. A word was considered overextended if there was evidence of even one overextended usage, even though the vast majority of applications of the word were correct extensions. Overextensions were classified into Rescorla's (1980) three categories of overextension: categorical overinclusions, analogical overextensions, and predicate statements.

Results

Our presentation of the results of the research will be in three sections: Atsuko's rate of vocabulary acquisition, the composition of her early lexicon, and the role of overextension in her vocabulary development. Before presenting these lexical data, a brief overview of Atsuko's general progress in language acquisition during this initial 11 week period of exposure will be given.

During the first 4 weeks of acquisition, which ended at the time of the first session, Atsuko spoke exclusively in single word utterances. After 5 weeks in the U.S., Atsuko had attained 50 words of productive vocabulary and was beginning to produce original 2 word utterances. This onset of syntax at the 50 word vocabulary mark is a well-documented co-occurrence in first language learning. In the 6th week, 3 word utterances appeared. By the 7th session at 11 weeks, Atsuko had a large number of 3, 4, and 5 word utterances, as well as a few sentences of 6 words or more.

These data make it clear that Atsuko learned to talk more rapidly than even very quick first language learners are able to do. Even the most rapid first language learners have a period of at least 3 months or more of single word usage before they put even two words together, whereas Atsuko was combining words after 5 weeks. Atsuko's L2 progress in the first 3 months of acquisition appeared to be slower than that reported for some children in the literature, notably Huang's child Paul (Huang and Hatch 1978), Wode's son Heiko (Wode 1981), Fillmore's subject Nora (1979) and Kenyeres' (1938) daughter Eva. However, Atsuko's early L2 acquisition was quicker than that of many children described in the literature (e.g. Fillmore 1979; van Helvert 1982; Yoshida 1978).

Vocabulary acquisition.

Atsuko acquired productive vocabulary items at a rapid rate. She learned 171 words in 11 weeks, using a conservative criterion of spontaneous and meaningful use on at least two occasions and excluding Japanese versions of English words. There were an additional 80-to-90

words which we have a record of Atsuko using only once, but these are not included in the lexicon. Atsuko's first 75 words were acquired over a period of the first 7 weeks. The remaining 96 words were learned in the subsequent 4 weeks. Atsuko knew 16 of these 171 words before she arrived in America--9 number terms, 2 letters, 2 colors, and the words jump, bandaid, and cat.

A clear factor in accounting for Atsuko's rapid acquisition of the first 75 words in her lexicon is the presence of Japanese-English cognates or loanwords. These are English words used regularly by Japanese speakers with a Japanese pronunciation (e.g. dress is said dressu). That loanwords helped Atsuko get an initial entree into cracking the English code is demonstrated by the fact that 24% of her first 75 words were loanwords--as opposed to only 15% of the 91 words she learned in the second part of the time period. Atsuko was usually not aware that a Japanese word was a loanword until she stumbled on it accidentally. One amusing incident of this kind occurred when she was pretending to serve some food out of toy dishes and she asked her mother for the English words first for aisu creemu and then for chokolaato aisu creemu and to her surpise discovered that the English and Japanese words were the same.

We have contrasted Atsuko's vocabulary acquisition with that of a first language learner, a child named Daniel who had the most rapid lexical and syntactic development of the 6 children in the Rescorla (1980) diary study. It took Daniel 14 weeks--or twice as long as Atsuko--to acquire 75 words. Even eliminating loanwords and previously known words from Atsuko's lexicon, she acquired 75 new words much more

quickly than Daniel. It seems intuitively reasonable that an older child learning a second language will acquire vocabulary more rapidly than a young first language learner, because the older child already has a fully developed conceptual system in his native language, as well as more developed memory skills.

Composition of the lexicon. The first 75 words Atsuko acquired were classified by semantic category, using the same taxonomy employed for first language lexicons in Rescorla (1980). Atsuko's data and the comparable data for the 6 first language learners appear in Table 1.

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insert Table 1 about here

The first major finding is that Atsuko had a lower percentage of general nominals in her early lexicon than the first language children--48% as opposed to 65%. It is important to note that the 6 first language children in Rescorla (1980) were all first-born, middle-class children, as is Atsuko, and that they were all REFERENTIAL speakers according to Nelson's (1973) criterion; that is, 50% or more of their vocabularies consisted of general nominals. Atsuko, on the other hand, fits the criterion for being an EXPRESSIVE speaker according to Nelson's typology, because fewer than half of her words were general nominals. However, she is unlike Nelson's EXPRESSIVE speakers in that she quickly acquired productive and creative syntax to accomplish her social-expressive aims, rather than relying on unanalyzed ritual phrases as EXPRESSIVE speakers typically do.

Atsuko showed a strong referential inclination, but this did not take the form of object labelling, as it does in first language learning. Rather, Atsuko seemed to take the topic or object referent for granted and then made some comment or observation about it. She was highly motivated to point out correspondences between referents. For example, in the first session she drew an elaborate picture of a mouse and pointed out how the details in her picture, such as hair ornaments and the stars on the dress, matched things she was wearing. When shown pictures of animals to test her comprehension, she proceeded to pantomime each animal pictured, such as demonstrating a goose walking or a crab scuttling. It seemed clear that in these early weeks Atsuko was less interested in labelling objects than in saying something interesting about them and engaging others with language. Thus, she seems to have had a different pragmatic orientation than Kenyeres' Eva, whose deliberate vocabulary games suggest that she had a REFERENTIAL strategy. Atsuko's nominal percentage is roughly comparable to those of van Helvert's (1982) 5 Turkish subjects, suggesting that this more EXPRESSIVE language style may be quite common in second language learners.

Inspection of Table 1 reveals that Atsuko acquired relatively few words in the nominal word classes so popular with first language learners. That is, she used very few animal words, only a handful of clothing terms, and a rather small number of labels for man-made objects or for natural objects or places. In sharp contrast, 16% of her early lexicon consisted of number and letter terms and 19% of her first 75 words were modifiers, half of which were color names. These two

substantial distributional differences seem to reflect a clear developmental difference between first and second language acquisition. The words Atsuko was concentrating on reflect her cognitive skills and interests, which are very different from those of a 12-to-18 month old toddler. Examination of the lexicon of an older boy such as Wode's Heiko would surely reveal yet another pattern, such as words related to sports and fishing.

Important changes in the composition of Atsuko's lexicon took place from week 7, the point at which Atsuko had 75 words, to week 11, when she reached 171 words. These changes in the lexicon are directly related to the rapid strides she was making in syntax during this period from 7 to 11 weeks. While general nominals were 48% of the first 75 words, they comprised only 36% of the 96 words acquired in the following 4 week period. Formulaic expressions and interjections also declined in the latter acquisition period, although social phrases such as let's go and see you tomorrow continued to be a major component of Atsuko's lexicon (13% in first 75 words, 10% in last 96 words). The word class which showed a dramatic increase during this period was verbs, going from 4% of her 75 word vocabulary to 21% of the next 91 words she acquired. The number of auxiliary verbs, conjunctions, and prepositions also multiplied during this period, from 0% to 6%. The proportion of pronouns also almost doubled during this latter half of the acquisition period (from 5% to 9%). This high proportion of closed class words, that is pronouns, auxiliary verbs, conjunctions, and

prepositions, is quite different from the pattern typically seen in the early stages of first language vocabularies.

Overextension of words.

Each of Atsuko's 171 words was examined for overextended usage. Only 19 words were ever overextended, which constitutes 11% of her total lexicon of 171 words. Comparing 15% overextension in Atsuko's first 75 words with 33% overextension in the 75 word vocabularies of the 6 children in the Rescorla (1980) study, it is clear that overextension was much more common in the first language learners than it was for Atsuko. Of Atsuko's first 75 words, 11 words were overextended at least once, with 3 of these words overextended in more than one way. All but one of these 15 overextended applications were classifiable according to the typology found in Rescorla (1980). This one exception was a phonological error--grey for glue--which is similar to phonological errors reported by Vihman (1981) and reflects the R/L phonological confusion so notable in Japanese learners of English. An additional 3 possible phonological overextensions were noted: one for a word used only once (squash for fish); one in a Japanese/English mixed utterance (swing for swimming); and the third in one of the 96 words acquired in the last part of the acquisition period (dog for duck).

Of the 14 classifiable overextended applications in Atsuko's first 75 words, 50% were categorical overinclusions--that is overextension of a term to refer to a close relation of the standard referent in some clear taxonomic hierarchy. In the first language vocabularies, 55% of the overextensions were of this type, such as

cat for dog. Two of Atsuko's categorical overinclusions were similar to first language ones (mommy for daddy and Laurie for a picture of a girl). However, the other 5 were very different from L1 categorical overinclusions, in that they were errors in use of color terms, such as black for purple or pink for magenta.

The second type of overextension found was analogical, meaning that the word was used to refer to something which is not closely related to the standard referent in any clear categorical sense but rather shares some similar feature or characteristic with it. Fourteen percent of Atsuko's overextensions were of this type, slightly less than the 19% found in the first language children. Both of Atsuko's analogical overextensions were clearly metaphors: her frequent use of baby for tiny objects such as dots and crumbs and her use of mommy for the middle-sized of 3 flowers.

Finally, Atsuko produced 5 predicate statement overextensions, that is use of a word for a referent which bears some propositional relationship to the standard referent, such as possession, location, or temporal contiguity. Thirty-six percent of Atsuko's overextensions were of this type, somewhat higher than the 25% found in the Rescorla's (1980) first language study. Atsuko's predicate statement overextensions were very similar in character to first language predicate statements. She used mommy to refer to an origami flower her mother had made, Laurie for a ring similar to her friend's ring, Christmas for a picture of sledding, baby for a baby carriage she drew, and apple for apple juice.

Although Atsuko initially had some difficulty identifying the correct referents for a few English words, for the most part she seems to have learned the range of extension of her vocabulary items very well. Atsuko seemed to have a clear expectation that the concepts which she already knew how to label in Japanese would have equivalent English labels. For instance, she made 18 spontaneous metalinguistic statements over the first 11 weeks about the relationship between Japanese and English vocabulary (e.g., mommy means okaasan; baby means akachan; and oh good means the Japanese for you do well). There were 6 times when Atsuko was puzzled about Japanese-English mapping, such as when she asked her mother "Do you say night-night for sayonara?" We also have record of 13 times when Atsuko asked her mother for an English translation of a Japanese word she wanted to use, such as tree. Finally, there were a few occasions on which Atsuko made a plausible but incorrect guess from context about a word's meaning--such as her initial assumption that Roberto meant push because she heard the children use this teacher's name to request a push while swinging.

Thus, inspection of overextension in Atsuko's lexicon indicates a high degree of accuracy in application of English words. Overextension was much less prevalent than it is in first language learners. When Atsuko did overextend a word, she was much less likely to make a blatant error of reference than first language learners do. Most of her categorical overextensions were fairly subtle errors in the application of color terms, not surprising at her age. When these are excluded, the preponderance of her overextensions were either

analogical-metaphorical statements or else preysntactic attempts to convey propositional relations between referents. Finally, it should also be noted that Atsuko had no persisting overextensions, that is use of a word like dog to refer to many different animals over a period of weeks, as so often occurs in first language learners. It appears that Atsuko's small vocabulary did not lead her to overextend the few words she had over a broad range of referents. Rather, she did relatively little labelling and concentrated instead on commenting on a wide variety of referents using the small stock of words she knew.

Discussion

This research presents several findings regarding lexical development in second language acquisition. Atsuko's data indicate a different pattern of lexical acquisition from that typically found in first language learners. First, Atsuko's lexical acquisition proceeded much more rapidly. Secondly, Atsuko's vocabulary acquisition concentrated on different word classes than is common in first language acquisition. Nominals, or object labels, were much less prominent and verbs, pronouns, and modifiers were much more numerous in Atsuko's lexicon than they usually are in first language vocabularies. While Atsuko's general nominal percentage is similar to that of L1 EXPRESSIVE children, her productive use of verbs and pronouns and her acquisition of modifiers are not typical of early L1 acquisition.

The lexical analyses presented here suggest that semantic development proceeds differently in second language acquisition than

in first language learning. Overextensions and overinclusive categorizing seem to be much less frequent than in first language vocabularies, as could be expected given the conceptual development of the learner in the second language situation. When overextensions do occur, they seem to be quite ephemeral; that is, they do not persist over long periods of time as is the case with many first language overextensions. Additionally, fewer overextensions of the categorical overinclusion type seem to be made, with the exception of subtle errors such as in the domain of color terms.

It seems evident that Atsuko's pattern of lexical acquisition is just one of many possible patterns which second language learners might employ. This research suggests that studying vocabulary development in children learning a second language is a fruitful endeavor. It will be important in future research to see how personal and social characteristics of the learner influence lexical selection. Children learning a second language seem to differ widely in how they apportion their lexicon among different word classes, as is true in L1 lexical development. Some children concentrate more on nominal acquisition and others focus more on verbs and closed class terms. For example, Yoshida's (1978) Miki concentrated on nominals and learned few verbs, whereas Atsuko, Hakuta's (1974) Uguisu, and van Helvert's (1982) Turkish children learned substantial numbers of verbs. Vihman's (1982) data suggest that acquisition of multi-word lexical items is an important strategy for some children, consistent with the work of Peters (1983). These lexical style differences reflect what McLaughlin (1981) calls "operating procedures" or what

Seliger (1980) refers to as "tactics"--that is, idiosyncratic or individual variation in the route chosen toward acquisition of the target language.

In addition to lexical style differences, it seems very likely that children differing in age and sex will differ in the particular words they select to learn within a given word class. This variation will reflect different interests among children as well as reflecting the sociolinguistic context in which L2 is being acquired. Finally, the influence of the L1 semantic and phonological system on L2 lexical development is an important area for future research.

In future studies of L2 lexical development, it will be very important to collect vocabulary data using a diary or some other form of naturalistic method. This is because data collected in child-child or child-adult sessions are usually highly constrained in vocabulary range, as van Helvert (1982) found in her study of 5 Turkish children learning Dutch and as Felix (1978) reported in his study of American children learning German. A practical method to collect accurate vocabulary data on large numbers of children learning a second language would be an invaluable research tool for the study of L2 lexical development.

Semantic development in L2 acquisition is another area in which further work is needed. It will be important to replicate our finding of a relatively low rate of overextension of words in L2 acquisition, using larger samples of L2 learners. Ervin-Tripp (1981) has recently discussed the notion that second language learners should make fewer errors of reference than first language learners, making the

important point that the extent of advantage provided by a pre-established semantic system depends on the degree of cultural match between L1 and L2. While none of Atsuko's overextensions seemed to reflect interference from the Japanese lexical/semantic systmem, such negative transfer errors might be found in other children. These might be particularly evident in the categorical overinclusion type of overextension, as well as in overextensions of closed class terms such as confusions between indefinite and definite articles (Ervin-Tripp 1981; Hakuta 1976).

In conclusion, this research suggests that vocabulary acquisition in second language development differs in a number of ways from first language lexical development. Lexical acquisition proceeds more rapidly in L2 development, composition of the L2 lexicon reflects the learner's age and interests, and word meanings are generally more accurate than those in early L1 vocabularies. The research also shows that many issues which have been important in L1 lexical development are also highly relevant to L2 vocabulary acquisition. Individual differences in L2 lexical selection seem to be noteworthy, as manifested in differential focus on general nominal acquisition, learning of verbs, or acquisition of multi-word vocabulary items. These matters are relevant to Nelson's (1973) REFERENTIAL-EXPRESSIVE distinction. Similarly, research on the extent and character of overextensions in L2 lexical development, using a typology such as that employed here and in Rescorla (1980), should illuminate how L1 semantic organization influences L2 lexical acquisition.

References

Carey, S. (1982) Semantic development: the state of the art. In E. Wanner & L.R. Gleitman (Eds.) Language Acquisition: the state of the art. Cambridge: Cambridge University Press.

Clark, E.V. (1979) Building a vocabulary: words for objects, actions, and relations. In P. Fletcher & M. Garman (Eds.) Language acquisition: studies in first language development. Cambridge: Cambridge University Press.

Dulay, H., Burt, M. & Krashen, S. (1982) Language two. Oxford: Oxford University Press.

Ervin-Tripp, S. (1981). Social processes in first- and second-language learning. In H. Winitz (Ed.) Native language and foreign language acquisition. New York: Annals of New York Academy of Sciences, Vol. 379

Felix, S. (1978). Some differences between first and second language acquisition. In N. Waterson & S. Snow (eds.), The Development of Communication. New York: Wiley-Interscience.

Fillmore, L. W. (1979). Individual differences in second language acquisition. In C. J. Fillmore, D. Kempler, & W. S-Y. Wong (eds.), Individual differences in language ability and language behavior. New York: Academic Press.

Gillis, M. & Weber, R. M. (1976). The emergence of sentence modalities in the English of Japanese-speaking children. Language Learning 26. 77-94.

Hakuta, K. (1974). A preliminary report on the development of grammatical morphemes in a Japanese girl learning English as a second language. Working Papers on Bilingualism, 3, 18-43.

Hakuta, K. (1976. A case study of a Japanese child learning English as a second language. Language Learning, 26, 321-351.

Hakuta, K. (1978). Development of grammatical morphemes in a Japanese girl learning English as a second language. In E. V. Hatch (ed.), Second language acquisition: a book of readings. Rowley, Mass: Newbury House.

Hakuta, K. (1980). Theoretical issues and future directions in second language acquisition research, with special reference to Asian-Americans. Paper presented at Symposium on bilingualism--Asian-American perspective, Los Angeles, Ca. 1980.

Hakuta, K. & Cancino, H. (1977). Trends in second language acquisition research. Harvard Educational Review, 47, 294-316.

Huang, J. & Hatch, E. (1978). A Chinese child's acquisition of English. In E. V. Hatch (ed.), Second language acquisition: a book of readings. Rowley, Mass: Newbury House.

Kenyeres, A. & Kenyeres, E. (1938). Comment une petite Hongroise de sept ans apprend de francais. Archives de Psychologie, 26:104, 322-366.

McLaughlin, B. (1980). Theory and research in second language learning. Language Learning, 30, 331-350.

McLaughlin, B. (1981). Differences and similarities between first- and second-language learning. In H. Winitz (Ed.) Native language and foreign language acquisition. New York: Annals of New York Academy of Sciences, Vol. 379.

Nelson, K. (1973). Structure and strategy in learning to talk. Monographs of the Society for Research in Child Development, 38. (1-2) Serial #149.

Peters, A. (1983) Units of language acquisition. Cambridge: Cambridge University Press.

Rescorla, L. (1976). Concept formation in word learning. Dissertation submitted to Yale University, 1976.

Rescorla, L. (1980). Overextension in early language development. Journal of Child Language, 7, 321-335.

Seliger, H. (1980). Strategy and tactic in second language acquisition. Paper presented at Los Angeles Second Language Research Forum.

van Helvert, K. (1982). Acquisition of Dutch by Turkish children in verbal interaction with native peers--a longitudinal multiple-case study. Paper presented at Boston University Child Language Conference, Oct. 1982.

Vihman, M.M. (1981) Phonology and the development of the lexicon: evidence from children's errors. Journal of Child Language, 8, 239-264.

Vihman, M. M. (1982) Formulas in first and second language acquisition. In L. Obler & L. Menn (Eds.) Exceptional language and linguistics. New York: Academic Press.

Wode, H. (1981). Learning a second language: an integrated view of language acquisition. Tubingen: Gunter Narr Verlag.

Yoshida, M. (1978). The acquisition of English vocabulary by a Japanese child. In E. V. Hatch (ed.), Second language acquisition: a book of readings. Rowley, Mass: Newbury House.

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Table 1

Percentage of Vocabulary Words by Word Class Across Acquisition

	Vocabulary Corpus			
	L1 subjects	Atsuko		
Word Class	First 75	First 75	Last 95	Total 171
NOMINALS				
Specific nominals	8	7	11	9
General nominals	65	48	36	42
people	2	4	3	4
animals	12	1	2	2
food	11	11	8	9
clothing	5	3	0	1
letters/numbers	1	16	0	7
natural objects/places	9	4	4	4
man-made objects	24	8	13	11
actions/activities	1	1	4	3
abstract	0	0	2	1
NON-NOMINALS	27	45	52	49
modifiers (adj/adv)	8	19	9	13
verbs (main)		4	15	10
interjections/expressions		17	13	15
pronouns	19	5	9	8
auxiliary verbs		0	3	2
conj/prep/art/Q-words		0	3	2